PROPOSED

ACTION MEMORANDUM

June 1, 2001

Soil Removal at the Colonie Site
Colonie, NY

Formerly Utilized Sites Remedial Action Program (FUSRAP)

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I. PURPOSE

The purpose of this Action Memorandum is to document a revision to the Department of Energy (DOE) Action Memorandum issued in February 1997, to perform a soil removal action at the Colonie Site (the Site) in Colonie, NY under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The Site consists of the Colonie Interim Storage Site (CISS) and the Town of Colonie property within the CISS. Past activities at the Site have resulted in the presence of uranium (U-238), thorium (Th-232), lead (Pb), copper (Cu), and arsenic (As) on the Site soils.

To provide a basis for a soil removal action at the Site, an Engineering Evaluation/Cost Analysis (EE/CA) was prepared and issued to the public on September 6, 1995. A Responsiveness Summary was prepared to address all comments received and was issued as an addendum to the EE/CA. Subsequently, the Department of Energy (DOE) prepared an Action Memorandum for the selected removal action on February 14, 1997. The selected removal action (Alternative 3B, Moderate Excavation and Cap and Cover) includes excavation and off-site disposal of materials containing U-238 above 100 pCi/g or Th-232 above 15 pCi/g. Under Alternative 3B, soils with U-238 concentrations between 35 pCi/g and 100 pCi/g, would be consolidated to the west side of the Site, under an 18-inch gravel and earthen cap called the Designated Area (DA). The portion of the site not covered by the cap would be covered with six inches of clean soil, leaving the Site available for development for commercial, industrial, or recreational use. Alternative 3B was determined to be protective of human health and the environment, readily implementable, and cost-effective, while allowing a range of options for beneficial reuse for most of the Site.

Since the approval of the DOE Action Memorandum and initiation of the removal action, a change in the selection of removal actions has been deemed necessary due to:

- Uncertainties regarding the implementability of the DA,
- Physical constraints of the Site, and
- Local community resistance to Alternative 3B.

Considering the constraints on construction of the DA, Alternative 3B has been re-evaluated against another removal option (Alternative 2B, Large-scale Excavation and Disposal) that was previously considered in the 1995 EE/CA. This re-evaluation included a streamlined risk assessment, an update of ARARs for radiological contaminants and selected metals, and updated cost estimates for Alternatives 2B and 3B. This re-evaluation was documented in a Technical Memorandum and the results were used to prepare this Action Memorandum. The proposed alternative and a summary of the cost estimates are included in Section II of this document.

Based on the results of this re-evaluation, Alternative 2B, the large-scale excavation and disposal removal alternative, is now proposed. Alternative 2B results in the removal and off-site disposal of soils with concentrations in excess of revised radiological and metals removal action goals and places an average of a two-foot clean soil cover over affected areas, leaving the Site available for development for commercial, industrial, or recreational use, as well as residential use. Soil would be excavated, packaged, transported and disposed of at one or more off-site facilities based upon its radiological and metals characteristics. Alternative 2B eliminates the need for the DA, and has been determined to be protective of human health and the environment, readily implementable, and cost-effective, while allowing a range of options for beneficial reuse of the Site.

The removal alternative selected in this Action Memorandum may be the final response action for soils at this site. If after completion of the selected alternative, the results of this response action are found to have been sufficient to remediate the soils at this site, the next procedural step for soils at this site would be a "no further action" Record of Decision. Therefore, barring any unforeseen facts, circumstances, or changed conditions, this Action Memorandum is expected to be the last document to be published proposing response alternatives for soils at this site, and the response action selected in this Action Memorandum is expected to be the last response action taken for soils at this site.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

II. PROPOSED ACTION AND ESTIMATED COSTS

A. Proposed Action

1. Proposed action description

The proposed action is a modification of the one identified in the 1995 EE/CA as Alternative 2B – Large-Scale Excavation and Disposal. This alternative consists of the excavation and offsite disposal of soil and debris at the Site. Radiologically-impacted soil and debris exceeding cleanup goals would be removed from all depths and metals-impacted soil and debris exceeding cleanup goals would be removed from 0 - 9 ft below ground surface (bgs).

The proposed action will contribute positively to the overall remedial performance at the Site, because a large volume of soil containing contaminants of potential concern (COPCs) will be removed. The proposed action will not impede future responses based on available information. By removing large soil volumes, the removal action will specifically address unacceptable risks to human health and the environment and will allow various beneficial reuses of the land.

Based on the results of the alternative re-evaluation, soils containing elevated levels of U-238, Th-232, Pb, Cu, and As would be excavated and removed for offsite disposal. Conventional construction equipment would be used in the excavation and loading operations. Radiologically-impacted excavated soils would be transported to the disposal facilities by rail. Facilities previously constructed at the site would be used to load the soil into rail cars. Excavated soils containing less than 170 pCi/g U-238 and less than 54.5 pCi/g Th-232 may be disposed of at RCRA-permitted facilities. Excavated soils containing in excess of these limits would be disposed of at a low-level radioactive waste facility. Excavated soils that meet the radiological removal action goals, but not the removal action goals for metals may be transported by rail and/or truck to a permitted waste landfill.

The rail cars and trucks used to transport site materials to the disposal facilities would be inspected for safety before use. The exteriors of containers and vehicles would be checked and decontaminated, if necessary. Shipments would be manifested according to applicable requirements for hazardous materials. Pre-designated routes would be traveled and an emergency response program would be established for responding to accidents. The transportation of soils from the Site would comply with applicable state and federal regulations.

Following receipt of acceptable confirmation results, excavated areas would be backfilled and restored. Certified clean fill material would be obtained from outside sources and be placed and compacted in the excavated areas. The fill would be placed to restore the existing topography and graded to promote drainage. Due to the extensive excavation required, the Site will be backfilled to grade, with an average of two feet of soil over the remediated areas, with most areas requiring a greater backfill depth. Finally, the areas would be seeded to provide an erosion control cover.

It should be noted that the proposed action is applicable only to the Site (i.e., the CISS and the Town of Colonie property within the CISS). The Niagara Mohawk and CSX properties identified in the 1995 EE/CA, as well as the groundwater at the entire site, will be addressed in separate Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) actions.

2. Engineering Evaluation/Cost Analysis (EE/CA)

Two comprehensive EE/CAs have been completed, one for the site buildings in 1993, and the other for the soils in 1995. In addition, a Technical Memorandum has been prepared to support this Action Memorandum.

The objective of the Technical Memorandum was to ensure that the response action selected in the DOE Action Memorandum is protective of human health and the environment by re-evaluating Alternatives 2B, Large-Scale Excavation of Radiological and Hazardous Metal Materials, and 3B, Moderate Excavation, Offsite Disposal of Radioactive Soil, and Cap and Cover from the 1995 EE/CA.

Preparation of the Technical Memorandum involved: reviewing previous reports and investigations; identifying new site data and work that has been completed since issuance of the 1995 EE/CA; performing a streamlined risk evaluation and updating applicable or relevant and appropriate requirements (ARARS); evaluating and analyzing the two removal action alternatives, including performing a cost analysis and comparing the removal alternatives against the nine CERCLA criteria; and identifying a preferred option based on the analysis.

As part of the ARARs analysis and risk assessment tasks, three on-site usage scenarios (Resident Farmer, Urban Resident and Industrial Worker) were evaluated to develop site-specific removal action goals. The Urban Resident and Industrial Worker Scenarios did not include use of groundwater, so a fourth scenario, Off-Site Drinking Water Receptor, was also evaluated to determine whether protection of off-site groundwater would be the limiting factor in determining cleanup goals for the on-site scenarios. Because off-site groundwater is a limiting factor, it was concluded that the Urban Resident scenario was the most representative scenario of the future use of the site, and that scenario was used in setting the removal action goals where ARARs were not available.

3. ARARs and removal action goals

Analysis of potential ARARs in the Technical Memorandum resulted in the identification of the following ARARs that pertain to Alternative 2B:

- Radiological criteria for unrestricted use (10 CFR 20.1402) (chemical-specific).
- Treatment standards (40 CFR 268.40, 268.48, and 268.49) (action-specific).
- SPDES substantive requirements (6 NYCRR Parts 754.1, 754.2, 754.4, 756.1, 756.2, and 756.3) (action-specific).

A more thorough discussion of ARARs is provided in the Technical Memorandum.

Site cleanup criteria identified in the 1995 EE/CA are: 1) U-238 concentration of 35 pCi/g when averaged over a 5 cm soil depth; 2) thorium concentration of 5 pCi/g averaged over

100 m^2 area for the surface 15 cm of soil, and 15 pCi/g averaged over 15 cm thick layers of soil more than 15 cm below the surface; and 3) 500 ppm of lead in soil.

The cleanup criteria for the usage scenarios evaluated in the Technical Memorandum are summarized in Table 1.

For the most likely future use scenario (Urban Resident), the risk analysis shows that the cleanup levels in Table 1 are protective of human health and the environment. As shown in that table, U-238 at a level of 110 pCi/g would be protective, however, to meet previous DOE commitments, a 35 pCi/g cleanup level for U-238 is recommended (Table 2). The selection of the more conservative U-238 criteria has a minimal effect on the total volume of waste (approximately 5%) and total project cost (less than 5%). Using a dose-based methodology, the risk analysis showed that the Th-232, Pb total and Cu total cleanup levels should be 2.8 pCi/g, 450 mg/kg, and 1,912 mg/kg, respectively. For As total, the regional soil background concentration (7.4 mg/kg) is recommended as the cleanup goal.

The recommended soil cleanup goals, therefore, are:

- 35 pCi/g for U-238
- 2.8 pCi/g for Th-232
- 450 mg/kg for Pb total
- 1,912 mg/kg for Cu total
- 7.4 mg/kg for As total

Table 1

Summary of Cleanup Criteria for Land Use Scenarios

Contaminant	Resident Farmer	Urban Resident	Industrial Worker	Off-site Groundwater
U-238 (pCi/g)[2]	37	1,373 110[1]	4,024 110[1]	110
Th-232 (pCi/g)[2]	1.5	2.8	7.6	N/A
Pb total (mg/kg)	37	450	1,219	N/A
Cu total (mg/kg)	194	1,912	51,150 9,457[1]	9,457
As total (mg/kg)	7.4	7.4	7.4	N/A

[1]Protection of off-site groundwater is the controlling factor in determining cleanup criteria for this scenario.

[2]Cleanup goals represent values in excess of background.

Radiologically-impacted soil (i.e., soil with more than 35 pCi/g for U-238 or 2.8 pCi/g for Th-232) would be removed regardless of depth. Other metals-impacted soil would be removed only if present between 0-9 ft below ground surface (bgs). Metals-impacted soil below 9 ft would not be removed, since there is no complete exposure pathway and leaving that soil in place would be protective of human health and the environment. Final grading of the Site will result in an average of 2 ft of clean fill being placed over the excavated areas of the Site.

The Technical Memorandum recommends Alternative 2B, Large-Scale Excavation and Disposal, as the response action for radiological and chemically-impacted soils at the Site. This alternative meets all of the criteria used to evaluate the alternatives. Alternative 2B involves standard construction technologies with a proven successful application at the Site over the past several years.

Alternative 2B is recommended over Alternative 3B because impacted soils are removed from the Site and long-term storage of soil onsite within the DA is not a component of this action. As a result, Alternative 2B provides greater long-term effectiveness and permanence, greater short-term effectiveness, and greater ease of implementation in comparison to Alternative 3B. Alternative 2B also offers the advantage of a wider range of potential future uses for the Site. Finally, Alternative 2B presents the best possibility for acceptance by the citizens of Colonie and the surrounding area.

Table 2

Comparison of DOE Criteria vs. USACE Selected Criteria

Contaminant	1995 DOE Criteria [1]	Selected Cleanup Criteria [2]
U-238 (pCi/g)[3]	35	35
Th-232 (pCi/g)[3]	15	2.8
Pb total (mg/kg)	500	450
Cu total (mg/kg)	10,000	1,912
As total (mg/kg)	N/A	7.4

[1]The DOE goals are based on a mixture of residential and industrial/commercial land use.

[2]The USACE cleanup goals are based on urban residential land use.

[3]Cleanup goals represent values in excess of background.

B. Estimated Costs

Table 3 provides an estimate of costs associated with implementing Alternatives 2B and 3B. The costs are for the soil removal action only. The summary does not include costs associated with groundwater investigation, monitoring and remedial action or with proposed activities at the CSX and Niagara Mohawk properties, neither of which is part of this removal action. A detailed cost estimate is currently being prepared to determine the total cost to complete the entire remediation project.

Table 3

Summary of Cost Estimates for the Site Soil Removal Action

Item	Alternative	
	2B	**3B**
Direct Construction Cost	$16,588,000	$11,356,000
Indirect Construction Cost	$2,296,000	$2,588,000
Total Construction Cost	$18,884,000	$13,944,000
Post-Closure Activities (Present Worth)	$876,000	$1,266,000
Total Cost	$19,760,000	$15,210,000

III. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed or no action at the Site would permit uranium, thorium, and metals from contaminated soil to potentially migrate to groundwater and the environment, resulting in exposure to workers and possibly members of the general public.

IV. OUTSTANDING POLICY ISSUES

None.

V. PUBLIC NOTIFICATION

The Technical Memorandum and this Proposed Action Memorandum can be found in the Administrative Record file maintained at the Site, and in the information repository at the William K. Sanford Town Library located on Albany-Shaker Road. The notice of the availability of these two documents was published in the Albany Times Union on June 18, 2001, and contained a request for public comments on the Proposed Action Memorandum. [*The 30-day public comment period extends through July 17, 2001. In addition, a public meeting is to be held on July 11, 2001, to present the Proposed Action Memorandum. USACE representatives will answer questions about the removal action alternative now being proposed. Responses to the comments received during*

the comment period will be included in the revised Action Memorandum, which will then be signed and placed in the Administrative Record.]

VI. RECOMMENDATION

This decision document represents the revised Removal Action for soil contaminated with metals and radiological material at the Site in Colonie NY. This decision document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This action is based on the Administrative Record for the Site.

Conditions at the Site continue to meet the criteria set forth in Section 300.415 of the NCP for a Removal Action. I approve the selection of Alternative 2B as the Removal Action at the Site.

APPROVED: _____ DATE: _____

M. Stephen Rhoades
Brigadier General, U.S. Army
Division Engineer